




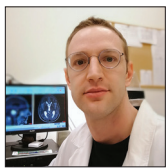
Video Abstract

# Spinal navigation for small thoracic intradural tumors: The challenge between minimally invasive and exoscopic magnification

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## ABSTRACT

**Background:** Spinal navigation offers significant benefits in the surgical treatment of small thoracic intradural tumors. It enables precise tumor localization without subjecting the patient to high radiation doses. In addition, it allows for a smaller skin incision, reduced muscle stripping, and limited bone removal, thereby minimizing the risk of iatrogenic instability, blood loss, postoperative pain, and enabling shorter hospital stays.

**Case Description:** This video presents two cases demonstrating the application of spinal navigation technique for thoracic intradural tumors measuring <20 mm. In the first case, which involves a small calcified tumor, navigation can be performed using 3D fluoroscopy or computed tomography images obtained intraoperatively. Notably, as illustrated in the second case, the merging of preoperative magnetic resonance imaging images with intraoperative 3D fluoroscopy enables navigation in the context of soft intradural lesions as well. The setup of the operating room for these procedures is also depicted.

**Conclusion:** In these procedures, the use of an exoscope, in addition to the well-known advantages in terms of magnification and ergonomics, provides a large space of movement around the surgical field, with greater ease in the use of navigation devices and ultrasound. The minimal invasiveness of the surgical approach is in no way a hindrance to exoscopic visualization and surgical dissection.

**Keywords:** 4K-3D images, Exoscope, Spinal intradural tumor, Spinal navigation

## [Video 1]-Available on:

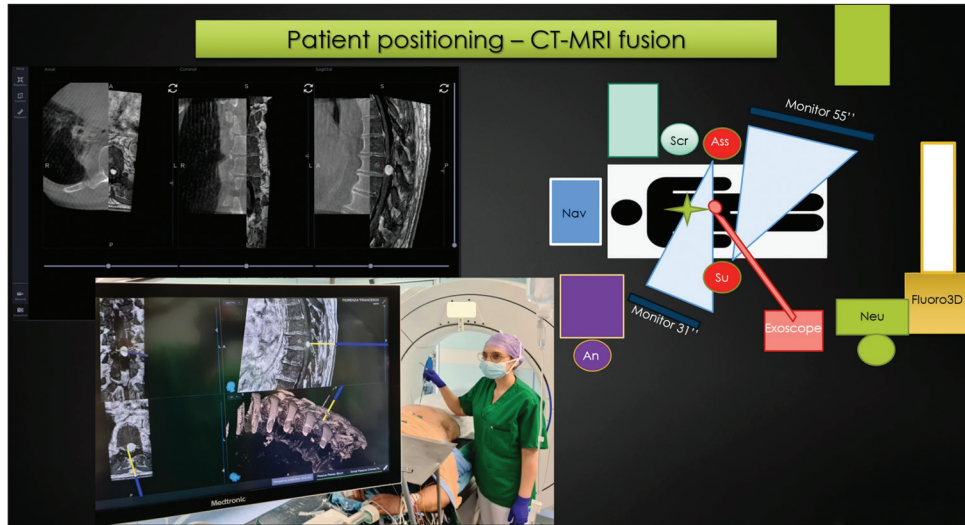
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## Annotations<sup>[1-5]</sup>

1. 00:00 – Principles and advantages of spinal navigation and exoscopic surgery
2. 02:36 – First case description
3. 05:17 – Second case description
4. 08:55 – Conclusions

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**Video 1:** Patient positioning-CT-MRI fusion

### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Nil.

### Conflicts of interest

There are no conflicts of interest.

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